

Shifts in Manufacturing Industries

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STATISTICS recently issued by the Bureau of the Census, in addition to affording comprehensive data as to the extent of the decline in the total value of manufacturing production and in aggregate employment and pay rolls, provide some interesting facts concerning the varying extent to which individual industries have been affected by prevailing conditions. The census report¹ also disclosed that while the statistics on industry as a whole in 1933 reveal a sharp reduction from the 1931 results, some industries were able to report considerable gains between these 2 years and some few industries reported improvement over 1929.

According to the census figures, the shrinkage in manufacturing production between the last 2 census years was not exaggerated by the available monthly data on production and the price trend of manufactured goods; rather the actual decline in the value of manufacturing output between 1931 and 1933 was somewhat greater than is indicated by estimates based on these data. The major trends over the period 1929 to 1933 may be readily grasped by reference to the accompanying charts.

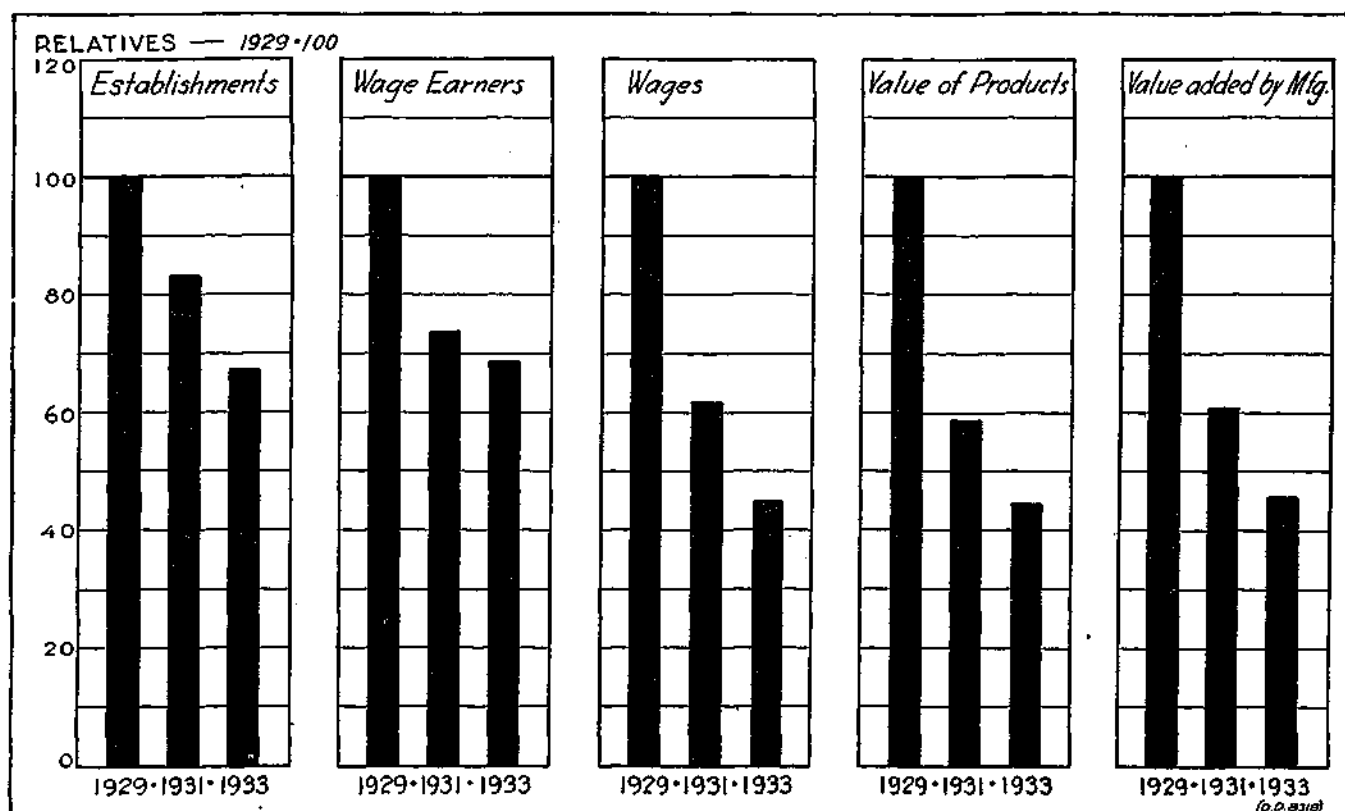
As a result of a variety of causes, over which the Bureau of the Census had no control, the coverage for 1933 was not quite complete for some industries; this did not affect the figures to any considerable degree. In comparing the 1933 figures on the value of product with those for 1929 and 1931, it should also be borne

in mind that in 1929 the figure represents the value of product shipped or sold during the year whereas in the other years it represents the value of production at current prices.

It should be noted that the actual decline in the number of manufacturing establishments has not been as great as that indicated by the chart. The census enumerations for the periods covered do not include those establishments producing goods to the value of less than \$5,000. A considerable number of establishments with a value of product of \$5,000 or more in 1929 dropped below that figure in subsequent years, and hence were not included in the census enumerations. Also, the number of idle plants increased as production of those companies with multiple plants was concentrated in the more efficient units. The fact that such establishments, which were actually operating, were omitted has no particular bearing on the employment or value-of-product data since, if available, they would constitute only inconsequential fractions of these totals.

The "value of product" figures, as reported by the Bureau of the Census, include a large amount of duplication. The Bureau of the Census has estimated that the net value (at f. o. b. factory prices, not retail prices) of finished manufactured goods in the form in which they reach the consumer, was about two-thirds of the gross value of product reported by the census, or approximately \$21,000,000,000 in 1933.

¹ Census of Manufactures, 1933—Summary by Industries. Rotoprint report of the Bureau of the Census, United States Department of Commerce.



NOTE.—Figures cover establishments with a value of product of \$5,000 or more.

Comparison of Summary Data from Census of Manufactures

Changes by Industries

In order to bring out some of the more significant changes by industries, two special tabulations were prepared. One of these, showing the percentage change in the value of products, by industries for the period 1929 to 1933, permitted the preparation of the frequency distribution table (table 1). The other was a tabulation of those industries which reported a larger value of product in 1933 than in the preceding census year, 1931 (table 2).

Table 1 brings out the fact that while the decline from 1929 to 1933 for the 295 industries for which comparable data are available was 56 percent, the changes for individual industries ranged from large increases in the alcoholic beverage industries² to declines exceeding 90 percent for the locomotive (other than electric), not made in railroad repair shops, sand-lime brick, and lapidary industries.

Table 1.—Manufacturing Industries grouped according to Percentage Change in Value of Product, 1929 to 1933

Percentage group	Number of industries	Value of products (thous. of dollars)		Percentage change
		1929	1933	
Increases:				
Over 30.....	1	2,448	24,084	+883.8
20-30.....	1	20,351	26,373	+29.6
10-20.....	3	186,441	215,906	+15.8
0-10.....	2	171,577	179,690	+4.7
Declines:				
0-10.....	1	18,326	18,233	-.5
10-20.....	4	263,827	227,056	-13.9
20-30.....	19	2,543,120	1,879,970	-26.1
30-40.....	30	5,038,040	3,139,969	-38.3
40-50.....	67	18,480,167	10,150,308	-45.1
50-60.....	65	12,089,619	5,467,100	-54.8
60-70.....	55	11,312,300	4,024,265	-64.4
70-80.....	32	15,063,609	4,056,174	-73.1
80-90.....	12	2,490,835	393,439	-84.0
90 and over.....	3	98,771	7,955	-91.9
Total of above industries.....	295	67,826,431	29,815,522	-56.0
Total of other industries ¹	12		1,543,321	-----
Total of all industries.....	307	69,960,910	31,358,840	-55.2

¹ No comparable data are available for these industries for 1929 because of shifts in classifications.

Aside from 3 liquor and allied industries, 4 industries are included in the groups with an increased value of product as compared with 1929 as follows: Matches; beet sugar; rayon and allied products; and needles, pins, hook and eyes, and snap fasteners. These 4 industries all reported a larger number of wage earners and a larger value of product in 1933 than in 1929, although only the beet sugar industry reported a larger pay roll. The gain in the beet sugar industry for wages (8.6 percent) was about half as large as the relative increase in the value of product. The match industry, with an increase of 29.6 percent in value of product, had a pay-roll decrease of 2 percent, while the other two reported increases in the value of product of 5 and 3 percent, respectively, and decreases of 14 and 12 percent in the amount of wages paid. The progress of the rayon industry during the depression has been particularly impressive.

Industries reporting a decline of 30 percent or less in value of product between 1929 and 1933 numbered 24, and the combined value of product of these industries was equal to 7 percent of the total value of product in 1933 for the 295 industries for which comparable statistics are available. The modal group,

² The malt-liquor industry, with a value of product of \$342,917,000, accounted for an important part of the value of product reported for the 12 industries shown in table 3, for which comparable 1929 data are not available.

which includes one-third of the 1933 total value, reflects a drop of 45 percent. The industries in the highest three groups—those with a decline of over 70 percent—are mainly the durable-goods industries and those producing luxury or semiluxury articles.

Industries Reporting Increases in 1933

Since industries able to report improvement during a period in which the general trend of production and distribution is downward are of particular interest, comparative figures for those industries which reported a higher value of product in 1933 than in 1931 are detailed in table 2. Of the industries for which comparable data are available, 28 were included in this category.

While a rather diversified group of industries will be found in this tabulation, those of the consumer-goods type predominate. Several of the textile and allied products industries are included, a condition resulting from the improvement in output in 1933 as well as the promptness with which prices for such products rose after the depression low was reached in the first quarter of that year.

Table 2.—Industries Showing an Increase in Value of Products, 1933 over 1931

Industry	Value of products (thous. of dollars)		Percentage change
	1931	1933	
Asphalted felt-base floor covering.....	19,093	22,714	13.6
Belt and packing leather.....	14,522	14,880	2.5
Boxes, paper, n. e. c.....	217,872	223,094	2.4
Buttons.....	21,625	22,412	4.1
Cloth sponging and refinishing.....	2,447	2,855	16.7
Cotton goods.....	805,792	861,170	6.9
Files.....	7,316	7,391	1.0
Food preparations, n. e. c.....	147,546	152,764	3.5
Gloves and mittens, cloth or cloth and leather combined, made from purchased fabrics.....	14,539	16,012	10.1
Gold, silver, and platinum, refining and alloying.....	41,398	44,004	7.7
Horse blankets, fly nets, and related products.....	1,134	1,568	37.3
Liquors, distilled, and ethyl alcohol.....	21,741	60,880	279.9
Liquors, vinous.....	949	24,084	2,437.8
Malt.....	19,242	27,023	40.5
Matches.....	18,473	26,373	42.8
Minerals and earths, ground or otherwise treated.....	7,205	9,694	32.7
Nails, spikes, etc., not made in wire mills or in plants operated in connection with rolling mills.....	6,828	6,973	2.1
Needles, pins, hooks and eyes, and snap fasteners.....	20,342	22,788	11.9
Rayon and allied products.....	132,632	156,932	18.3
Saddlery, harness, and whips.....	9,339	10,364	11.0
Sausage, meat puddings, headcheese, etc., and sausage casings, not made in meat packing establishments.....	84,333	86,438	2.5
Smelting and refining, nonferrous metals other than gold, silver, and platinum, not from the ore.....	34,695	41,123	18.5
Steel barrels, kegs, and drums.....	21,644	30,399	40.5
Sugar, beet.....	85,673	127,133	48.4
Sugar, cane, not including products of refineries.....	13,931	18,233	30.4
Surgical and orthopedic appliances and related products.....	51,012	51,442	.8
Wool pulling.....	7,378	10,226	38.6
Wool shoddy.....	8,952	10,477	16.0
Total of specified industries (28).....	1,835,593	2,090,776	13.9
Total of all industries.....	41,038,402	31,358,840	-23.6

Ratio of Wages Paid to Value Added by Manufacture

Although the summary totals indicated that the ratio of "wages paid" to "value added by manufacture" for all industries did not alter appreciably for the census periods subsequent to 1929, it was decided to examine the individual industries to determine whether this over-all average was representative. Two sample groups of industries were selected—those in which the value added by manufacture in 1933 was in excess of \$100,000,000 and a second group of the smallest industries; that is, those in which the value added by manufacture was less than \$5,000,000 in

1933. In the former group were 32 industries for which comparable data were available for 1929 and 1933, and in the latter, 75 industries. The industries examined thus constituted more than a third of the total.

These data fail to indicate a definite shift in either direction in the ratio of wages to the value added by manufacture between 1929 and 1933; and, further, do not indicate any marked difference in the trend between these two census periods when comparing the larger and the smaller industries. In the former group, 19 industries showed a higher ratio of wages paid in 1933 than in 1929, while for 13 industries the ratio was lower. For the 75 industries in the small-industry group, the ratio was higher for 40, lower for 34, and unchanged in 1 instance.

The industries in the group with value added by manufacture of \$100,000,000 and more (table 3) contributed about four-fifths of the value added by manu-

facture by all industries. In this group there were only 9 industries in which the change in the ratio from 1929 to 1933 was more than 4 points. The widest change was in the steel-works and rolling-mill products industry, in which the ratio increased from 47.1 percent in 1929 to 57.3 percent in 1933. Substantial increases were also reported in the ratio for bread and other bakery products, petroleum refining, and silk and rayon goods. For the other five industries in the group to which reference has been made—cotton goods, glass, manufactured ice, motor-vehicle bodies and parts, and rayon and allied products—the ratio of wages to value added declined.

The cigarette industry, in which the ratio of wages to value added was the lowest for the industries tabulated for the purpose of this article, increased from 7.2 in 1931 to 10.3 in 1933. Comparable data for value added by manufacture for 1929 are not available for this industry.

Table 3.—Comparable Industry Statistics for Three Census Years, for Two Selected Groups of Industries, Showing the Ratio of Wages to the Value Added by Manufacture

(In thousands of dollars)

Group	Value added by manufacture			Wages			Ratio		
	1929	1931	1933	1929	1931	1933	1929	1931	1933
Total all industries.....	31,783,010	19,357,643	14,610,401	11,607,287	7,173,232	5,261,576	36.5	37.1	36.0
Industries having a value added by manufacture of over \$100,000,000 in 1933 (32 industries).....	18,666,889	11,392,799	8,584,308	7,125,140	4,386,633	3,268,896	38.2	38.5	38.1
Percent of all industries.....	58.7	58.9	58.8	61.4	61.2	62.1			
Industries showing a larger ratio in 1933 than in 1929 (19).....	13,547,756	7,944,087	5,851,283	5,282,324	3,281,530	2,389,197	39.0	41.3	40.8
Industries showing a smaller ratio in 1933 than in 1929 (13).....	5,119,133	3,448,712	2,733,020	1,842,816	1,105,103	879,699	36.0	32.0	32.2
Industries having a value added by manufacture of less than \$5,000,000 in 1933 (75 industries).....	408,269	255,952	170,066	182,050	301,896	64,768	38.9	39.8	38.0
Percent of all industries.....	1.3	1.3	1.2	1.6	1.6	1.2			
Industries showing a larger ratio in 1933 than in 1929 (40).....	252,149	131,924	88,276	91,124	51,362	34,241	36.1	38.9	38.8
Industries showing a smaller ratio in 1933 than in 1929 (34).....	202,100	124,028	78,404	37,004	48,346	29,519	43.0	42.2	37.6
Industries showing no change between 1929 and 1933 (1).....	14,020	9,870	3,386	3,922	2,190	948	28.0	23.4	28.0

The value added by manufacture in the second group of small industries was between 1 and 2 percent of the total for all industries in each of the 3 census years, varying from 1.6 percent in 1929 to 1.2 percent in 1933. The ratio of wages to value added for these industries combined was 38.9 percent in 1929 and 38.0 percent in 1933. Considerably wider changes in the ratio occurred for these small industries than for the more important industries. A variety of causes undoubtedly contributed to these individual variations.

Labor Income from Manufacturing

The wage data, which have been used in computing the foregoing ratios, do not cover the total labor income from manufacturing industries. In 1933, salary payments, exclusive of those made to principal officers and employees of central administrative offices, amounted to \$1,357,000,000. The salary payments to the latter two groups probably amounted to an additional 50 percent of the reported item, this estimate being based on the more complete salary data assembled in the 1929 Census of Manufactures. Therefore, the total salary and wage payments in manufacturing in 1933 represented about one-half of the total value added by manufacture and about 23 percent of the total value of product. Of the total value of manufactured product, 53 percent was represented by the cost of materials, containers, fuel and purchased electric energy, which figures also include a large but indeterminate labor cost. Furthermore, the remaining 24 percent over and above the cost of the above-mentioned materials and direct salary and wage payments includes important direct or indirect labor payments

for such items as advertising, insurance, and taxes. Thus, while the total labor income from manufacturing cannot be directly computed from the census data, it is considerably higher than the direct wage costs reported.

Number Employed Rose Rapidly in 1933—5 Percent Gain in 1934

Employment statistics collected in the census reveal an increase in the number of wage earners employed by manufacturing industries from 5,147,190 in March 1933 to just under 7,000,000 in September. The December 1933 total was some half million less than the figure at the end of the third quarter.

These figures emphasize a fact that is often lost sight of, that is, that the number of persons engaged in manufacturing industries constitutes less than one-fourth of the total number employed in all industries and occupations. The importance of the figures on factory employment, which are widely used as a current business indicator, lies in the barometric nature of the manufacturing industries.

Estimates based on these census statistics, and the monthly data collected by the Bureau of Labor Statistics, indicate that there was an increase of 5 percent in the number of wage earners engaged in manufacturing between December 1933 and December 1934, the number increasing from 6,456,105 in 1933 to 6,779,000 in 1934. Sample data collected by the Bureau of Labor Statistics indicate that wage payments by manufacturing industries in 1934 were probably one-fourth larger than the \$5,262,000,000 wage payments of 1933.